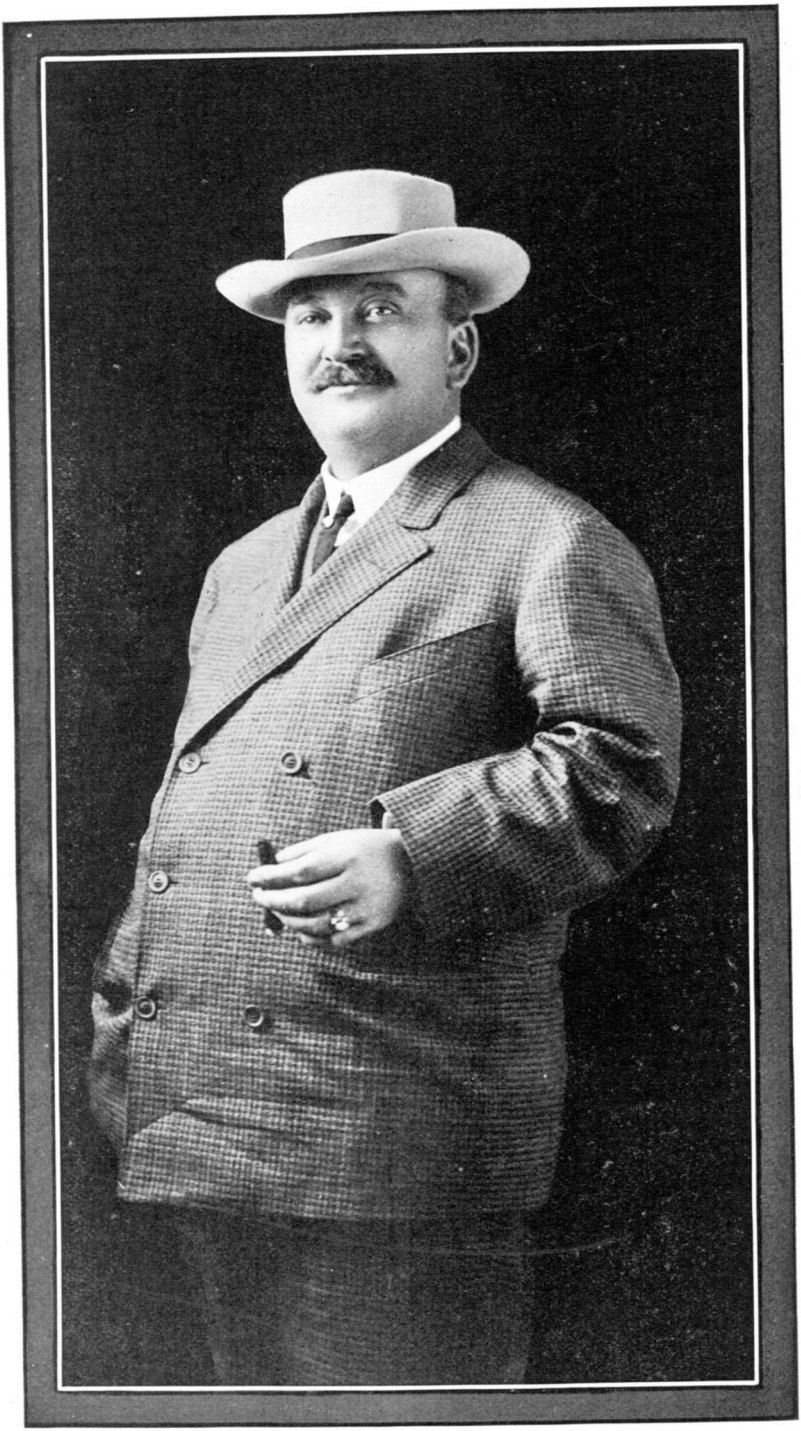
1906

Building of the (Gulf Coast Lines) railroad

William Doherty

Jeff N. Miller



Jeff N. Miller, Vice-President and General Manager of the St. Louis, Brownsville and Mexico Railway, Under whose Direction that Railroad was Built.

Some Interesting Physical and Economic Facts Concerning the Railroad Which Has Opened Up to Settlement and Development the Wonderful Texas Coast Country. : : : : : : : :

RAILROADS have made Texas great and are making her greater. If you don't believe it, let us give you a few figures. You can then draw your own conclusions.

In 1870, thirty-six years ago, the population of Texas scarcely exceeded 800,000. Her cotton production, her principal crop, was only half a million bales annually. Her taxable values were only $170,000,000. And her railroad mileage did not reach the 700 mark.

Today Texas boasts of a stalwart, progressive citizenship of more than three and a half million souls. Her cotton production of more than 3,000,000 bales every year is one-fourth of the world's supply, and her taxable values exceed $1,200,000,000. And today Texas has more than 12,000 miles of railroad, the greatest mileage of any state in the Union.

These figures show the certain working of the inexorable law of cause and effect. Railroads, the cause; progress, people and prosperity—the effect. Other evidence than these figures is not needed to irrevocably assert the right of railroads to recognition as the supremest factor in the state's development. The fact that the taxable values of the state have increased in almost precisely the same ratio as the state's railroad mileage has been augmented by the building of new lines, tells the story of Texas' progress in the past, and indicates the force that will be most powerful in advancing that progress in the future. Texas, today, stands as a conspicuous example of the civilizing and developing power of railroads, and every mile that is annexed to that total is sure to add a certain portion to her wealth, position and power.

Railroad building is the natural forerunner of industrial development, commercial progress and general prosperity. It is the dawn that must precede the day.

Having thus laid down our proposition, we want to tell you the story of a railroad. It is the story of a Texas railroad, a brand new, modern, up-to-date institution that has just been turned out of progress' workshop. It is the story of a railroad which has been built in accordance with our proposition, previously enunciated, through a barren land, to make it fruitful and populous, and to profit thereby.

In the light of recent happenings, it seems marvelously strange that the pioneer railroad builders of Texas overlooked the Gulf Coast Country. But, viewing the matter from their standpoint, the standpoint of twenty-five years, or even a decade, ago, it is not hard to see as they saw. They didn't know what we know today. The same tendency of people and progress to follow railroads was not so well established then as it is now. What they tried to do was to follow the way people had already gone. They wanted some assurance that their labors would not be in vain. They sought to connect isolated communities, and then in turn to connect them with great commercial centers. The possibility of building their railroads through barren and unpeopled lands, and then filling those lands with people, did not appeal to them in the same sense that it does to the modern builder. Herein, indeed, is the distinguishing difference, if you please, between the railroad exploiter of years gone by and his modern successor. The real distinction lies in the fact that while the former dreamed of endless miles of steel rails and great cities, the latter thinks of small farms and fruitful acres.

This, doubtless, explains why the Texas Coast Country, despite its numerous inviting and even alluring attractions as a field for railroad exploitation, its geographical and topographical advantages, its fertile soils and genial climate, so long failed to interest the railroad builder; it was an unpeopled and consequently unproductive country. But with its manifold advantages and dormant resources, it could not, in this land where people are ever seeking to better themselves, remain unpeopled and unproductive always. If the land was rich and the climate congenial, why couldn't it be made productive? Yes, it could, if there were only people. But where were the people who would go to a barren land and live there a hundred miles or more from a railroad? No, people don't do those things nowadays—at least people as a class don't. Then came the happy thought, build a railroad. It would carry the people into the land, and they would make it productive.

It was, undoubtedly, some such reasoning as this that terminated in the conclusion to build the St. Louis, Brownsville & Mexico Railway, or the Gulf Coast Line as it has been aptly denominated, because of the proximity of its route to the Gulf of Mexico. This is the new railroad with which our story has to deal.

In the month of July, 1903, just a little more than three years ago, the building of the St. Louis, Brownsville & Mexico Railway began. Today it is a completed railroad with four hundred miles of track, reaching from Houston and Galveston on the north to Brownsville, the southernmost point in the state.

The work of construction began at Robstown, a point on the Texas Mexican Railway, 17 miles west of Corpus Christi, in July, 1903. On the 4th day of July, 1904, a year later, the line was completed and placed in operation to Brownsville, a distance of 141 miles. Added to this was 17 miles of joint trackage from Robstown to Corpus Christi, making a total of 158 miles.

In December of the same year a branch line diverging at Harlingen, 25 miles north of Brownsville and penetrating the fertile Rio Grande Valley for a distance of 55 miles, was completed and immediately opened for traffic.

In April, 1905, four months later, the line was finished to Sinton, 21 miles north of Robstown.

During the next year the energies of the builders were focused upon the extension of the line to its northern terminus.

By April of last year Bay City, 121 miles north of Sinton and 284 miles north of Brownsville, was reached, and trains began running between those points.

A few weeks later the rails reached Algoa, a point on the Gulf, Colorado & Santa Fe Railway midway between Houston and Galveston, where access is gained to the two cities mentioned.

With its lines now completed, the mileage of the Gulf Coast Line sums up as follows:

Brownsville to Algoa	343.08
Harlingen to Sam Fordyce	55.40
Corpus Christi to Robstown (joint track)	17.03
TOTAL MILES	415.51

Besides main line trackage there are also 71.78 miles of spurs and siding which swell the total to 487.29.

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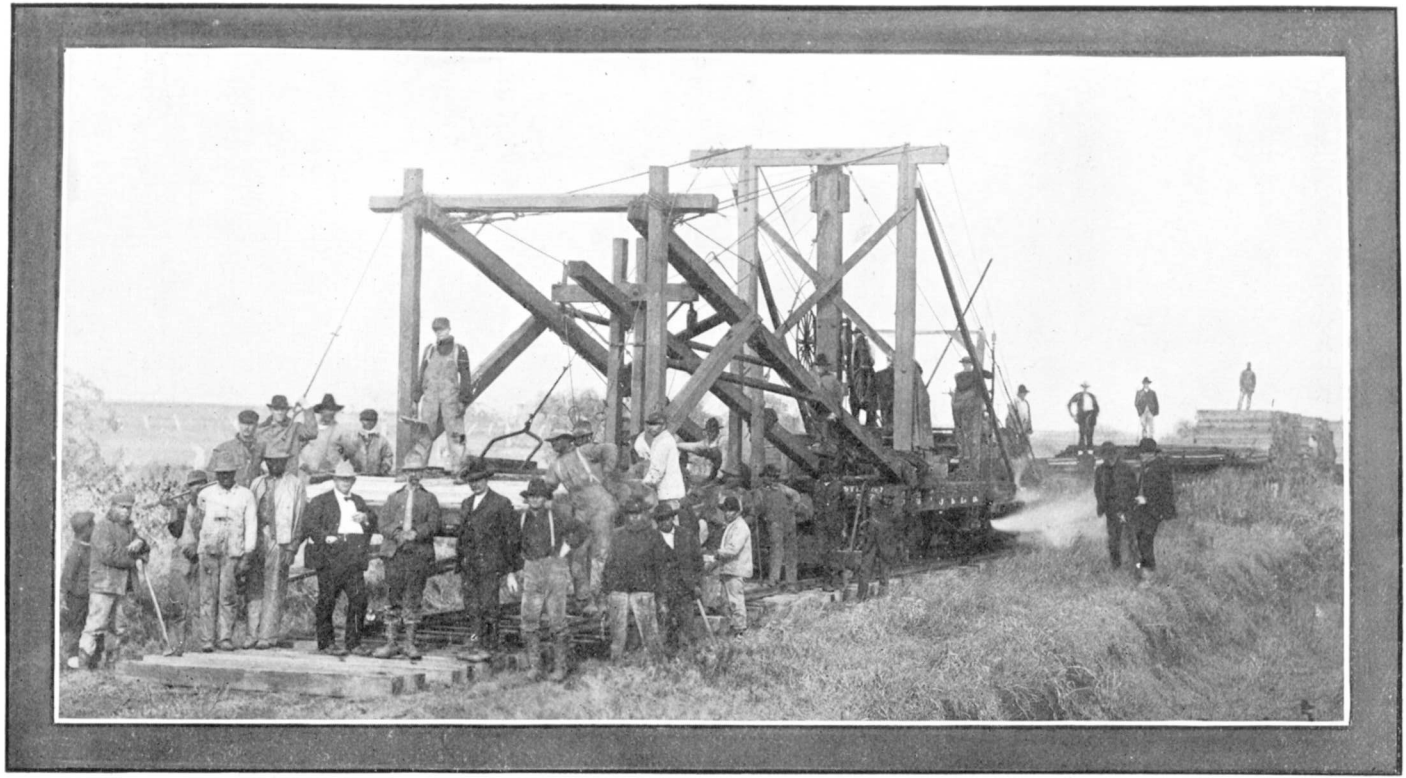
It was not altogether an extraordinary or remarkable feat—the mere building of more than 400 miles of railroad in the short space of three years. To be sure, such a thing is not what might be called an everyday occurrence. In truth, it is doubtful if such a record for speed in railroad construction was ever surpassed. But this was not the unusual feature in the building of this railroad. The remarkable thing which distinguishes the building of the St. Louis, Brownsville & Mexico Railway, and makes it an achievement of extraordinary proportions, was that such a railroad as IT IS, WAS



The Track Laying Machine in Action. By this Modern Method, Five Miles of Track Can be Laid in the Short Space of a Working Day.

BUILT IN SO SHORT A TIME. That which marks the achievement as something conspicuous and notable IS THE RAILROAD ITSELF.

The conventional method in railroad construction is usually to get the railroad built—to get it completed in the shortest possible time. Everything else is secondary to that desideratum. If anything is missing, if everything is not what it should be, if the roadbed is uncertain, if grades are not right, if bridges are unsteady, these discrepancies can all be remedied after trains are running. This is one reason why we hear so much in these days about railroad earnings going into improvements and betterments.

This railroad is both unique and remarkable because its building did not adhere to the conventional method. It was the idea of the builders that the railroad, when completed, should be a finished railroad in every particular, a railroad that should at once take class as a standard and modern, up-to-date line, a railroad that could at once be operated in equal competition with older and established roads. To the attainment of this end, dollars were a secondary consideration.

So much by way of prelude and explanation. The reader may now be interested in learning about some of those things that make the Gulf Coast Line an extraordinary incident in modern railroad construction.

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Somewhere in the preceding discussion we said something about the attractiveness of the Coast Country as a field for railroad exploitation. By that we meant its purely physical characteristics, its topographical and geographical advantages. From this standpoint it may reasonably be questioned if a more inviting region for railroad construction than the Texas Coast Country could be found within the borders of this country. While it is not low in the sense of being swampy and marshy, it is level, with scarcely a rise or a fall, aside from natural declivities which constitute the drainage of the section. Brownsville, the southern terminus, for example, is 34 feet above sea level, while the elevation at Algoa, the northern terminus, 343 miles north of Brownsville, is 35 feet. Both of these points are about 20 miles inland from the coast, which is about the average distance the line keeps from the coast along its entire route.

On the main line, the point of lowest elevation is at Norias, in the artesian belt, 67 miles north of Brownsville, where the barometric pressure registers 19 feet. At Inari, 140 miles farther north, the elevation is 77 feet above sea level. This is the point of highest elevation on the main line.

With such facts as these before us, it is easy to see that from the standpoint of "gradient," as the engineers call it, the Gulf Coast Line is a remarkable railroad. It is almost entirely without grades.

Should you discuss the matter with the professional engineer, whose knowledge comes from delicate and sensitive instruments, he would tell you that there are something more than 200 grades on the entire line, but should you attempt to find them for yourself, the chances are that you would fail to count even one-tenth of that number. As a matter of fact, the maximum grade on the entire line is only two-tenths of one per cent. To the mind of the uninitiated layman, this statement, doubtless, does not convey anything very comprehensible. But when it is stated that many of the great transcontinental lines are compelled to move their trains over grades that often exceed five per cent., the idea is more easily grasped.

While comparative figures on the subject are lacking, it can be said without fear of dispute that the Gulf Coast Line is the lowest grade railroad in the United States. Fifty per cent. of its entire mileage is absolutely level. This will eventually mean the operation of trains on fast schedules at the lowest possible cost.

The same physical conditions that made it possible to build the lowest grade line also made it practicable to construct the longest straight line in the country. In the 343 miles of main line from Brownsville to Algoa, there are but 84 curves, and the majority of them are barely perceptible to the eye. On the Hidalgo branch there are 15 curves, making a total of 99 for the whole line. In the entire mileage of 399.54 there are but 25 miles that are not straight track. From Robstown to Brownsville, it is 141.45 miles, and yet but little more than five miles of track in that distance is not absolutely straight.

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We said that this new railroad was a modern institution, and that no expense was spared to make it the counterpart of the builders' ambition. Money—millions of dollars—though not unwisely nor indiscreetly, as the finished work attests, was dispensed with a lavish hand in the realization of that end. The engineers' instructions were peremptory. They were told to choose the most direct and practical route, without curves, grades or turns, as straight as an arrow, through the undeveloped coast country from Brownsville to Houston and Galveston. Towns, or even cities, were not considered. In fact, between its objective points, the selected route touched less than half a dozen towns in all that stretch of country 400 miles long, an average of about one town to every eighty miles. From Brownsville to Sinton, 160 miles, there was not a single village, not even a postoffice. But this condition of things had no effect upon the plans of the promoters. Indeed, it was just that which had attracted their attention to the Coast Country. They knew that all the country needed was the railroad they were building, and that people, towns, and some day cities, would naturally result.

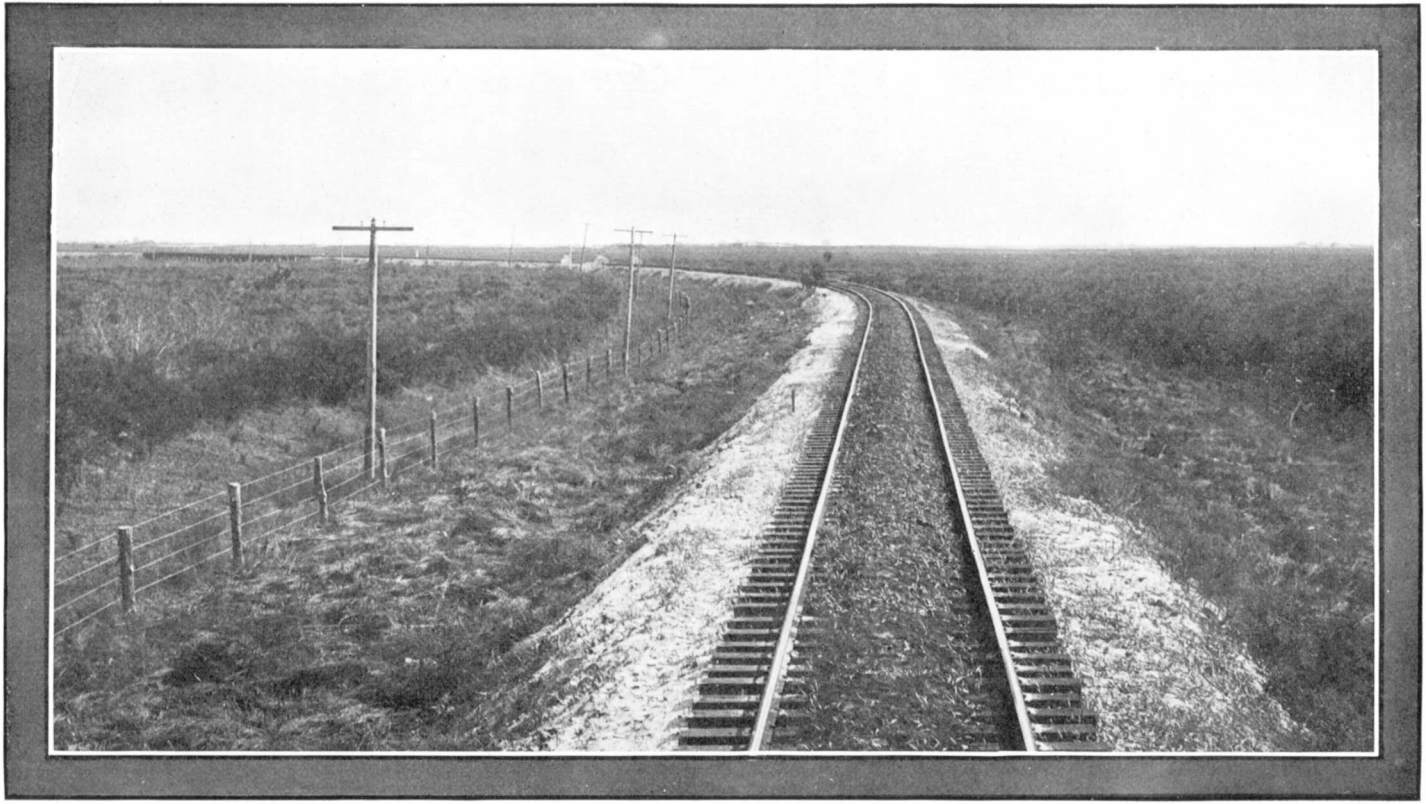

PHOTO BY WHEELUS

A Section of Completed Track, Ballasted with Gravel and Sprinkled with Oil.

But we are digressing. Suffice it to say that regardless of motive, incentive or reason, the railroad was built, and today stands as a monument to the courage, foresight and energy of its builders. Let us now investigate the railroad.

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In the building of the entire line, from Brownsville to Algoa, and from Harlingen to Sam Fordyce, 4,782,410 cubic yards of earth, an average of 11,456 cubic yards per mile, were handled in construction work, in digging "cuts" and making "dump." In a rougher, more broken country the total would probably have been many times greater, but even then the amount could have been materially diminished had the builders seen fit to relinquish their idea of a low grade line. From Robstown to Bay City, the amount of excavating and filling work was greater by three times than that which was necessary between Robstown and Brownsville, practically the same distance. Thousands of men and teams were simultaneously engaged in the grading work.

The usual mode of procedure in building new railroads is to lay them with cheap ties and light rail, and wait for "the grade to settle and the roadbed to work down to a good foundation." This is the general rule, but this railroad is an exception. The material used in its construction was the best—the most substantial money could buy. Main lines, branches, spurs and side tracks alike were built of the same quality of material.

The entire line is laid with sixty-five pound steel rail—that is to say, rail that weighs sixty-five pounds to the yard. This rail rests upon a firm foundation of long-leaf yellow pine ties.

Now then for a few figures. It requires 102 1-7 tons of 65-pound rail to lay 1 mile of track. Multiply that figure by 470, the total constructed mileage of the Gulf Coast Line, and you have 48,007 tons, or 107,535,680 pounds. That's the aggregate weight of the rails necessary to complete the railroad.

Every mile of track is supported by 3,200 ties. Multiplying this figure by 470, we have 1,504,000, the number of ties used in building the road.

Each tie weighs 200 pounds. Thus the total weight of the ties is 300,800,000 pounds, or 150,400 tons.

Each tie is nine feet long. Place end to end every tie used in laying the track, and you would have a tremendous piece of timber 2,563 miles long, that would span the continent from New York to Salt Lake City.

Four spikes to each tie are necessary to secure the rails to their resting place. Four to every tie, and 1,504,000 ties, makes 6,016,600, the total number of spikes.

Each spike weighs 10 ounces. Therefore, the total weight which

this little item alone contributes is 3,760,000 pounds, or 1,880 tons.

Linking the rails at every joint, there are a pair of angle bars and four bolts, the aggregate weight of which is 44 pounds. This item therefore adds 6,617,600 pounds, or 3,308 tons, to the weight of material.

Adding these several totals, we have the enormous sum of 418,713,280 pounds, or 203,595 tons—the aggregate weight of the material used in the construction of the Gulf Coast Line, exclusive of bridges.

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Now a few facts about the cost. Steel rail, delivered on the

ONE OF THE STEEL SPANS ALONG THE LINE

work, cost $35.00 a ton, or did at the time the contract for the building of the railroad was let. The 48,007 tons consumed, therefore, required an expenditure of $1,680,245.

Ties of the excellent quality upon which the rails of this road rest, cost 70 cents apiece. Multiplying the number of ties by this figure, we have $1,052,800 as the cost of the ties.

Spikes, angle bars, bolts, etc., contributed half a million to this expense. Bridges added more than a million to the total. The valuation of the equipment, which, by the way, is unsurpassed by that of any road in the country, exceeds a million dollars. The cost of grading approximated another million. And then adding to the foregoing sums the cost of erecting round houses, machine shops, section houses, and the magnificent depots that have been built at frequent

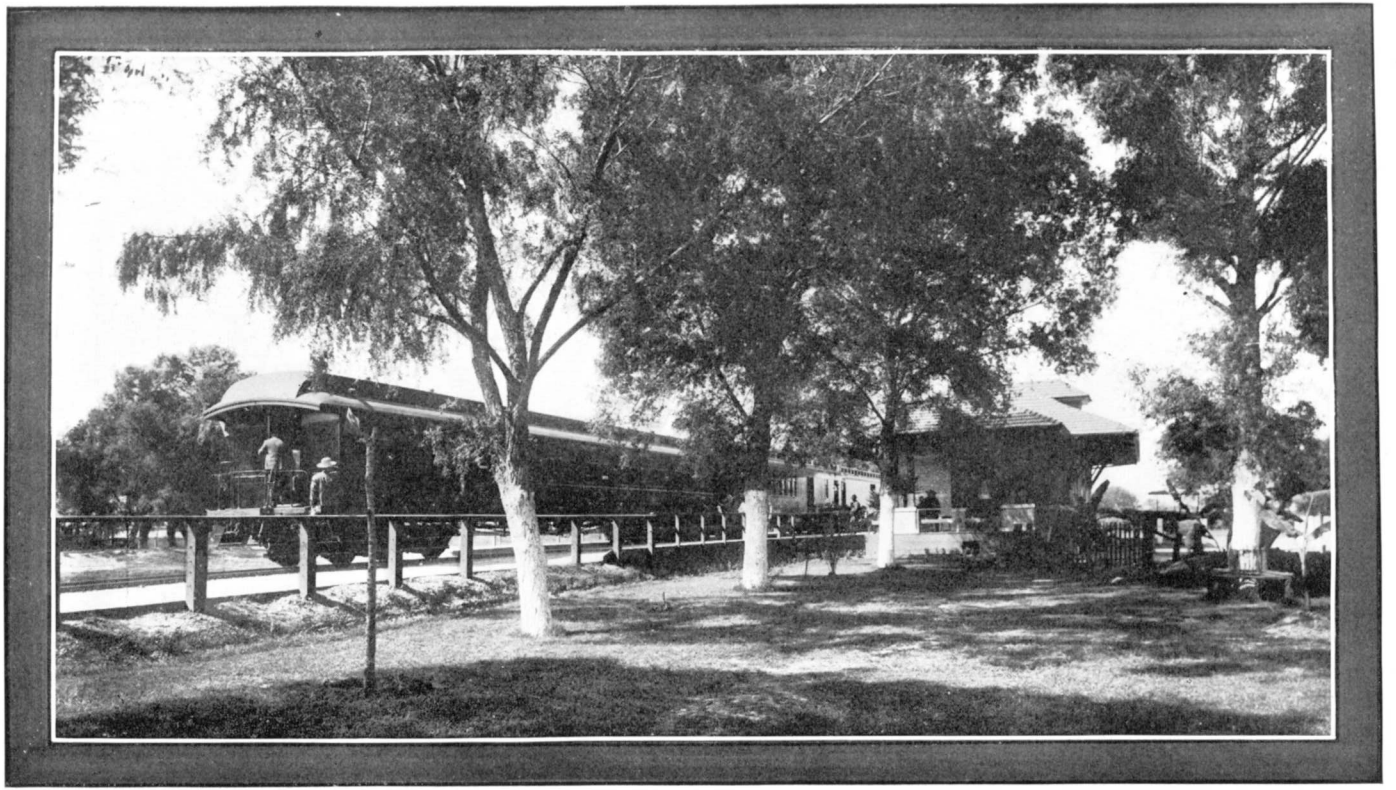

PHOTO BY WHEELUS

Passenger Station and Railroad Park at Brownsville.

intervals along the line, and numerous other incidentals, such as pumping stations, water tanks, fences, cattle guards, etc., the total cost of building and equipping the St. Louis, Brownsville & Mexico Railway was, in round numbers, $9,000,000.00.

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An important feature in the physical characteristics of the road which we have intentionally overlooked thus far, in order that we might discuss it separately, consists of the bridges which span the numerous streams that percolate the coast country.

The Gulf of Mexico is the catch basin for the drainage of all Texas, and a portion of New Mexico and Colorado In building the Gulf Coast Line, most of the watercourses that drain that vast territory had to be traversed. Three hundred and forty-four bridges, of all sizes, classes and description, had to be built. While most of these are pile trestles of superior construction, fourteen are splendid steel spans, six of which are draw-bridges, the most perfect specimens as to strength, weight and durability, in the bridge-building art ever manufactured in the United States. From the Aransas River to the Brazos, a distance of about 150 miles, there are eleven steel spans, including five draws, an average of one steel bridge to every thirteen miles. The longest bridge is that compassing the Nueces River. Including trestle approaches, it is 2,794 feet, or more than half a mile, in length. The longest steel span is at the Brazos, 426 feet. All of the steel structures are supported by concrete piers.

Every bridge was specially and separately manufactured, and inspected piece by piece as it was turned out at the mills, by a bureau employed for the purpose. Illustrative of the nicety of the work: Two 150-foot spans, each the duplicate of the other in its specifications, were ordered at different times. Set up and adjusted, one weighed 277,228 pounds, the other 277,211, a difference of only 17 pounds.

One of the first things that catches the eye and excites the curiosity of the stranger who chances to ride over the new railroad is the frequency and substantialness of the depots, section houses and other railroad buildings that adorn the right-of-way. In fact, along a good portion of the route he will see but little else, apart from the country in the natural state of its primitiveness. He will see dozens of imposing depot buildings, unoccupied by agents, and surrounded by nothing but barren land for miles around. This shows how the builders have evidenced their faith in the country they have undertaken to develop. Those depots have been placed there to accommodate people—when they come to live in the new land. When they come, an agent of the railroad will open up the station and serve them.

No less than forty-one of these depots have been built at various points along the line, but less than half of that number are yet occupied. Thirty of the total are combination freight and passenger depots—the conventional rural station. Five are strictly freight, while six are beautiful brick passenger depots, with much in their architecture that is artistic. These latter are located at Brownsville, Sarita, Kingsville, Vanderbilt, Bay City and Algoa.

The section houses are thirty-nine in number, and are equally distributed over the line. Unlike many of the depots we were just talking about, the section houses are prolific with occupants who are busy from morning to night improving the condition of the roadbed.

At present Kingsville is general headquarters of the road. Vanderbilt, 122 miles farther north, is a division headquarters. At both of these points the usual ear-marks of a railroad town are in evidence. At both places eight-stall brick round-houses, machine shops, boiler shops, paint and car shops and oil storage reservoirs have been erected.

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So much for the railroad and its needed accessories. Now about the equipment—that which gives life to a railroad, and really makes it a railroad.

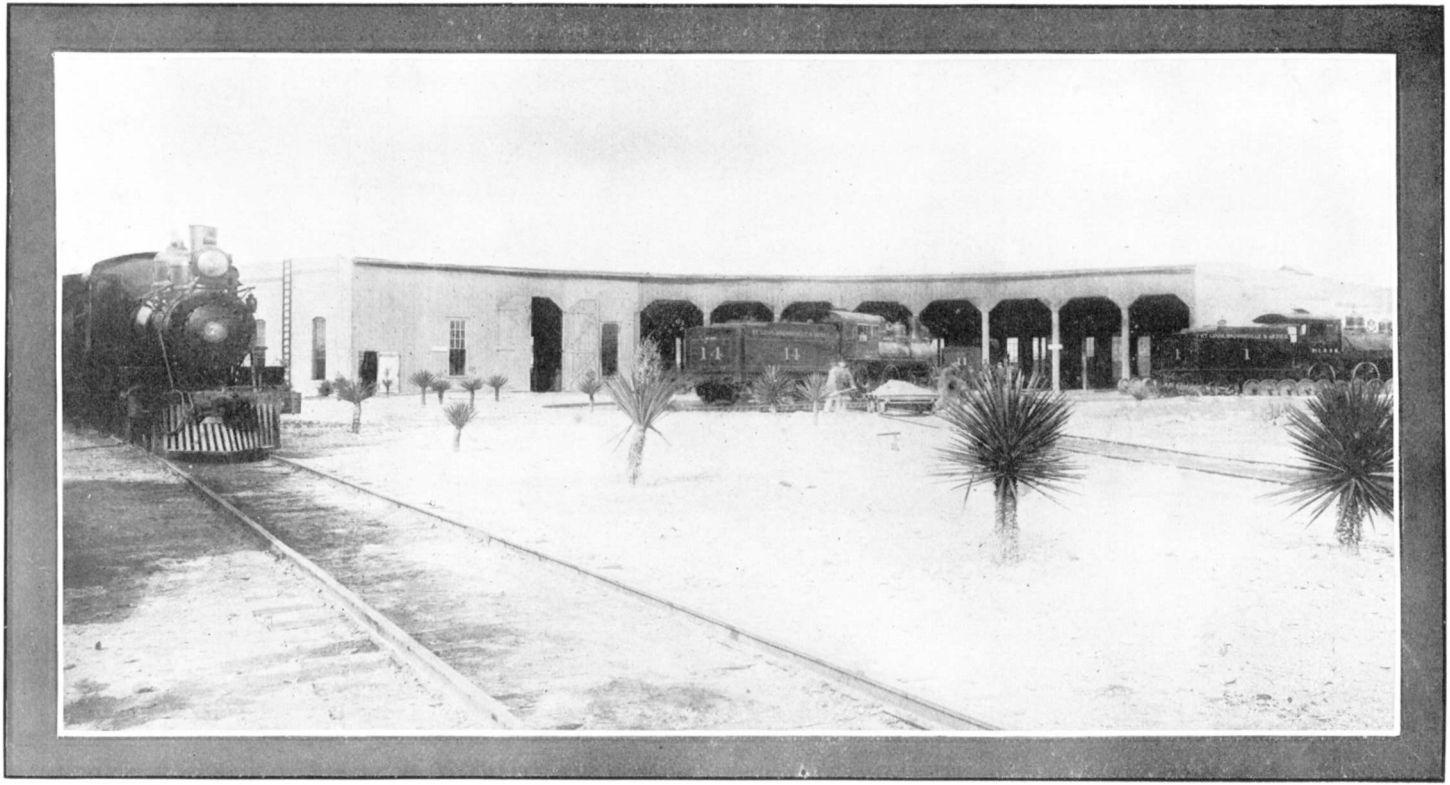
We hear a good deal these days about good roads. They tell us they are the manifestations of progress. Doubtless they are, but the means of locomotion, we believe, is just a little more important. In other words, on a hard, smooth, asphalt boulevard, faster and, we might add, more comfortable time can be made in an automobile than would be possible in an ice wagon.

Having constructed a remarkable railroad, the builders proceeded to harness it with remarkable equipment—locomotives and cars that would be in keeping with the high standard of the track and roadbed. This equipment is, without question, the most modern to be found on a Texas railroad today; indeed, it is to be doubted if anything superior to it is operated by any line south of the Ohio or west of the Mississippi.

All of the locomotives burn oil for fuel, exclusively, and are equipped with electric headlights. They are of the famous Baldwin make, and those of the passenger type are capable of a high degree of speed.

The passenger equipment is truly luxuriant in its appointments. It is vestibuled throughout, six-wheel steel-tired trucks, gas-lighted, and decorated and upholstered in true Pullman style.

The present register of equipment is as follows: 29 locomotives—12 passenger, 14 freight and 3 switch; 29 passenger coaches, chair cars, express cars, etc.; 520 freight cars, including box, stock, flat, tank and refrigerator cars and cabooses.



Roundhouse at Kingsville.

This comparatively small budget of equipment represents an investment of $1,054,116.00. It will, of course, be added to from time to time, as business may require.

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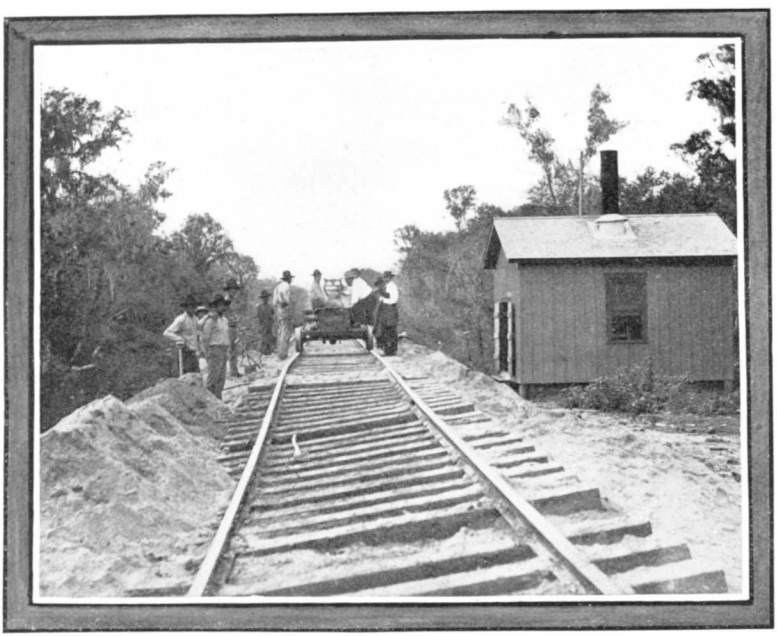
This is the completed railroad—the astonishing achievement of three years. Today it is operating trains on as fast schedules as any line in the state. The work of ballasting the entire line with a foundation of sand and a finishing of heavy gravel of superior quality is now well under way. The entire line will be subjected to this treatment, at a cost of more than a million dollars. After ballasting, the track



RAISING THE GRADE AND BUILDINS UP THE LINE, PREPARATORY TO PLACING IT IN OPERATION

is sprinkled with oil, which makes it dustless and prolongs its life. Within a very few years, limited trains will be running between Brownsville and Houston and Galveston, more than 360 miles, in eight or ten hours.

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While money—that is, capital—is always a necessary element in the achievement of great ends, the personal equation, that which directs and guides and brings results, is really the important factor. Hence we are ever eager to hear about men who are the leaders of great undertakings.

"Who built this railroad," do you ask? Well, a number of

capitalists and railroad promoters who saw, or rather were made to see, that a railroad traversing the Texas Coast Country would be a good investment, but the man who revealed to them the possibilities of such an investment, the man who saw the opportunity, formulated plans and then engineered them to a successful consummation, was none other than Mr. B. F. Yoakum, a native Texan, the modern Napoleon of the railroad world.

Like all successful doers of big things, however, Mr. Yoakum did not try to do everything himself. He was surrounded with able lieutenants, to whom was delegated the execution of plans which he and his associates adopted. For chief of staff, a practical and successful railroad man—a man admirably qualified by previous experience to build a railroad, and then operate it in a manner to make it pay, was selected. That man was Mr. Jeff N. Miller, the vice-president and general manager of the road. Mr. Miller is one of the few railroad managers in the country who have mastered that almost impossible conundrum, how to please all of the public all of the time. At home, in the bosom of his official family, as it were, he is a fiend for work and a stickler for details. Through the medium of a genial personality and a hearty sympathy, he inspires respect, esteem and confidence, and gets results where others might fail. From one end of the line to the other, he knows every section hand by his first name.

Great credit is due the general manager for the splendid showing which, despite conditions that were often adverse and circumstances that were frequently unfavorable, was made in the building of the line, and again for the really unprecedented showing which it has made in the matter of earnings since it has been in operation.

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The Gulf Coast Line is now built and in operation. What does it mean to the section it traverses, and what does it mean to the state of whose economic structure it is a part?

In the first place, it means the opening up to settlement and development of about 10,000 square miles of territory, which without the railroad would be entirely beyond the possibility of that influence, a section wherein, because of climatic conditions, an acre of land will annually produce more wealth than can be got from its equivalent elsewhere in the United States.

As a consequence of the railroad's coming, a wonderful change in conditions in the Coast Country is already perceptible. To illustrate this point, let us figure a bit.

Along every mile of main line track which this railroad has, there is a tract of land reaching out for five miles on either side which has enhanced in value from an average of $2.50 an acre to from $10 to $30 an acre. With 640 acres to the square mile, this tract aggregates 6,400 acres to each mile. Multiplying 6,400 by 400, in round numbers

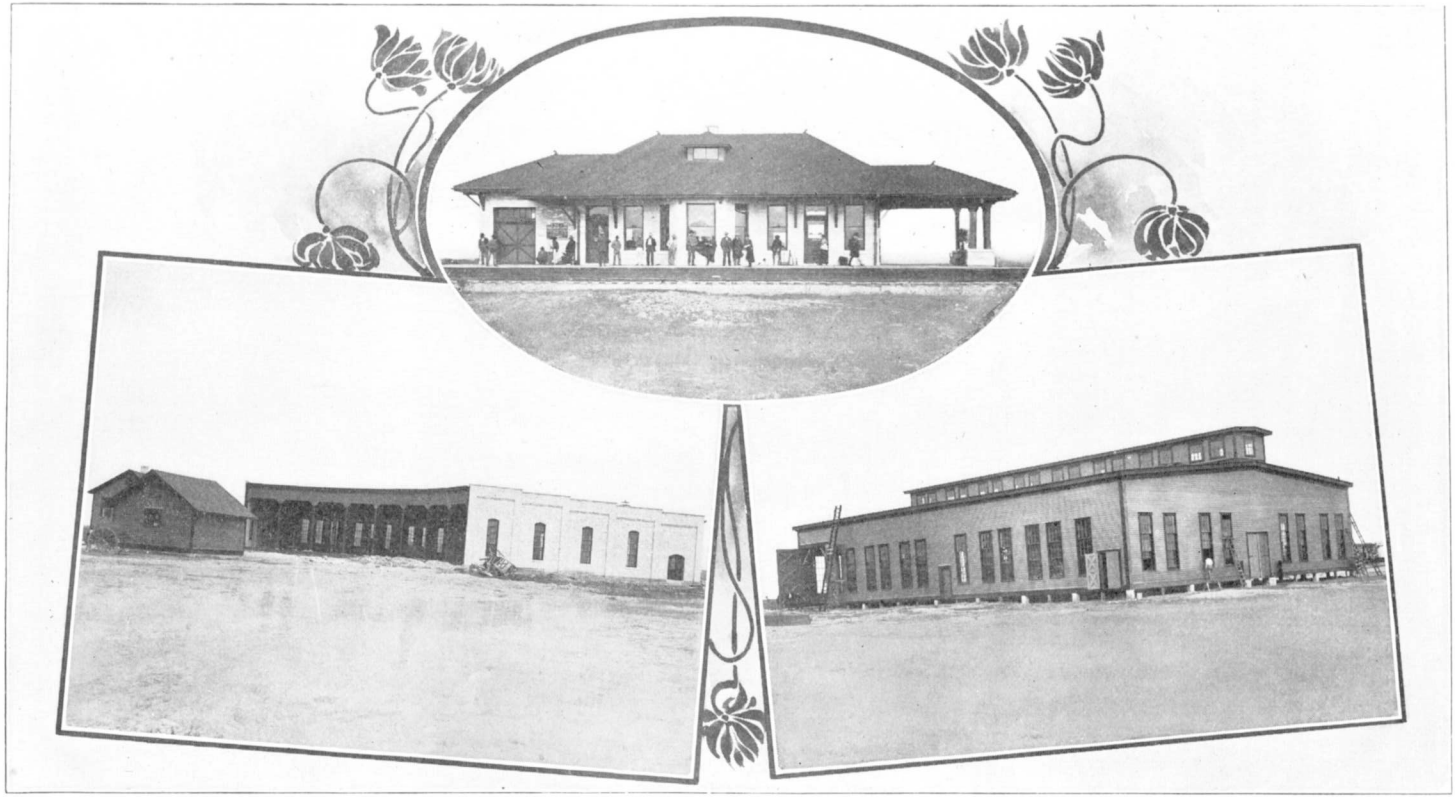

PHOTO BY WHEELUS ROUNDHOUSE PASSENGER DEPOT MACHINE SHOP

Vanderbilt, a Coming City, and Division Headquarters of the Gulf Coast Line.

the railroad's main line mileage, we have 2,560,000 acres thus affected.

Beyond the five-mile limit on each side of the railroad, and extending from five miles to ten miles from the railroad, there is a similar acreage which the building of the railroad has enhanced from $2.50 to from $5 to $10 an acre in value.

The average per acre enhancement within the five-mile limit, after subtracting its previous assessed value, is about $15 an acre; without, about $5 an acre.

Now here are 2,560,000 acres of land that have increased in value $15 an acre, and an additional 2,560,000 acres that have enhanced $5 per acre. Making the simple calculation and adding the results, we have the enormous total of $52,000,000. What does it represent? It represents, in dollars and cents, the enhancement of land values in the coast country because of this new railroad. It represents in dollars and cents what the railroad has already done for that section, while, as yet, the marvelous wealth-producing capabilities of the soil have only meagerly been taken advantage of. It represents, in dollars and cents, the wealth which this new railroad has already added to the state's capitalization. Last year the taxable values of Texas showed an increase of $75,000,000 over the previous year, and it is not assuming too much to declare that a good portion of that increase has been directly due to the St. Louis, Brownsville & Mexico Railway.

But the increase in land values is a very small consideration in comparison with the larger, more universal, specific and tangible benefits that are sure to follow. The railroad means thousands of new settlers; it means new producers; it means more production; it means more business and more wealth for the individual; it means that the Texas Coast Country will be the dwelling place of thousands of prosperous farms, and eventually the abode of great cities.

With transportation facilities, means of ingress and egress, and commercial intercourse with other sections, the future industrial greatness of the Texas Coast Country is assured, for it possesses, to a degree unchallenged by any other quarter of the civilized world, those elements of soil and climate so essentially necessary to the health, prosperity and well-being of man.

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In conclusion, it may be interesting to note that the new railroad which has been the subject of the foregoing discussion is but a link in a vast system of lines which are being constructed and assembled in Texas and the Southwest by the same interests.

A new line between North and South Texas, shorter than any of those now in operation; a new line reaching San Antonio from the North and thence to the Gulf; a new line through East Texas to New Orleans, all find a place in this wonderful program, in accordance

with which probably $50,000,000 will be expended in building new lines in Texas. In the prosecution of this program, the consideration, to which all others are subordinate, is that practically every mile of railroad to be built shall take its course through some section of the state where the steel rail and iron horse are yet total strangers. The marvelous possibilities of this scheme are indeed difficult to contemplate. The magnitude of the service which railroads have performed for Texas in the past is the only criterion for anticipating the results.

BALLASTING THE LINE, THE GENERAL MANAGER (IN THE CENTER OF THE PICTURE) DIRECTING THE WORK

VANDERBILT—A COMING CITY.

It is a fact not generally known that Mr. W. K. Vanderbilt, Jr., after whom the station of Vanderbilt on the Gulf Coast Line is named, was one of the first of the Eastern capitalists to take cognizance of the possibilities and advantages of this rapidly developing section of our country. Mr. Vanderbilt, in company with other New York capitalists, made a visit to the Gulf Coast Country shortly after the work of construction was commenced, and the results which have been attained since that time in that section have but confirmed his first impression of the great undeveloped strength of this new country.

While devoting the greater part of his time looking after the many interests which he has, as will be gathered from the accompanying picture, showing him in his 90-horse power automobile, Mr. Vanderbilt devotes considerable time to this sport, and was the originator of the Vanderbilt Cup Races which now attract international attention.